



## Wireless Sensor Network for Smart City

M.G. Senevirathna<sup>a</sup>, B.L.D.S. Harshini<sup>b</sup>, D.P.C.T.W. Gunaratne<sup>c</sup> and  
N.D. Jayasundere<sup>d</sup>

<sup>d</sup>*Department of Electrical and Information Engineering, Faculty of Engineering,  
University of Ruhuna*

<sup>a</sup>*menugayan@gmail.com*

<sup>b</sup>*chathurikagunaratne@gmail.com*

<sup>b</sup>*sumudi12@gmail.com*

<sup>c</sup>*jayasundere@eie.ruh.ac.lk*

### Abstract

Smart City is an environment where different kinds of devices are interconnected to provide the city occupants with up to date information. Smart city environments are considered important for future urban development. The sensing and monitoring of the heterogeneous environment conditions is the major role of a smart city. This paper presents a framework for creating a personalized smart city environment using Wireless Sensor Networks (WSN). This framework is able to handle heterogeneous conditions over the Internet and intercommunication among nodes, providing a base for Internet Of Things (IOT). The framework comprises wireless sensor nodes for sensing environment conditions, a hybrid gateway for coordinating the wireless network with an Internet accessible application server and a user interface giving remote accessibility to the WSN. The WSN is developed using mesh-tree topology. So as large number of wireless sensor nodes can be distributed as routers or end devices. The developed framework is capable of monitoring three kinds of signals, on demand data, periodic signals and emergency signals. The proposed framework is modelled and tested using five wireless sensor nodes so as each node can be measured air quality, flame, sound, light and temperature.

**Keywords:** *Hybrid gateway, Internet Of Things, Mesh-tree topology, Sensor Network, Wireless Sensor Network*